AD-A099 730 POLYTECHNIC INST OF NEW YORK BROOKLYN AERODYNAMICS LABS F/G 20/4
NUMERICAL FLOWS-TRANSIENT/VISCOUS FLOWS WITH SHOCKS.(U)
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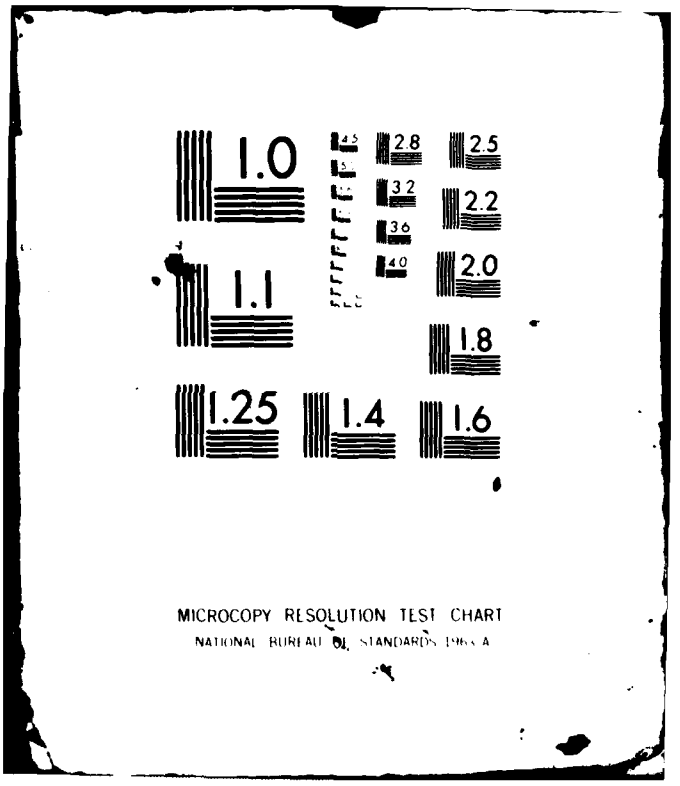
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MICROCOPY RESOLUTION TEST CHART
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(6) NUMERICAL FLOWS-TRANSIENT/VISCOUS FLOWS WITH SHOCKS.

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(9) FINAL REPORT AS OF MARCH 1979 (11)

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(12) 2

We have continued the theoretical and numerical research which had been carried on in previous years and whose projected continuation was outlined in our last proposal. Some of the goals were reached during the past year. In particular we were able to produce results of calculations of two dimensional unsteady viscous flow were produced by solving the Navier-Stokes equations on a very course grid on which accumulation of lines near the rigid walls was obtained by powerful analytic stretchings of coordinates. ~~Our most~~ important results ~~have been~~ were published in the POLY Report M/AE 78-22. ~~This~~ that contains the analysis of the new integration scheme for inviscid flow only. Further results have been mentioned in the AIAA paper 79-1510, presented as an Invited Paper at the Williamsburg meeting of the AIAA in 1979. Finally, POLY Report M/AE 79-40 contains the full extension of the technique to viscous flow and flows with imbedded shocks are also reported. Such techniques are, in our opinion, the most advanced techniques for the handling of transonic flow patterns. In the reports mentioned above, particularly in the last, all equations are analyzed and their discretization is discussed. Examples of applications of such techniques have been given in the same reports but more appli-

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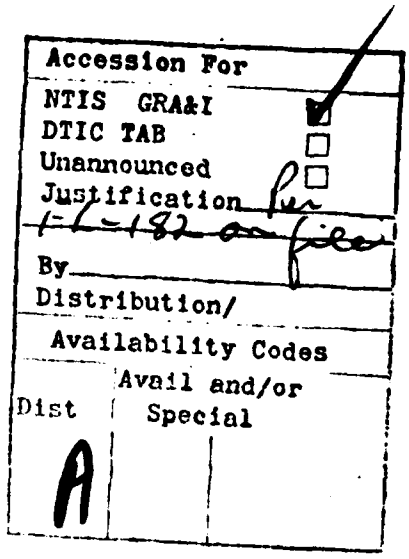
cations have been computed and are currently still under analysis; therefore, presentation of data has been delayed until we have completed all our numerical experiments.